Docket No. 2001-024-TAP

CLAIMS:

What is claimed is:

1. A method of establishing a data transfer rate, comprising:

reading a timing signal from a plurality of reference regions on a moving storage medium, wherein the moving storage medium moves at a speed in a first direction and the reference regions extend in a second direction; and

writing data to the moving storage medium at a rate proportional to the speed of the moving storage medium.

2. The method of claim 1, wherein the second direction is perpendicular to the first direction.

3. The method of claim 1, further comprising:

locking a variable frequency oscillator to the timing signal to generate a data transfer rate.

4. The method of claim 3, wherein locking the variable-frequency oscillator includes bringing a phase-locked loop into lock.

5. The method of claim 3, wherein the variable-frequency oscillator is a voltage-controlled oscillator.

6. The method of claim 1, further comprising:

reading data from the moving storage medium at a rate proportional to the speed of the moving storage medium.

7. The method of claim 1, wherein the moving storage medium is a tape.

8. The method of claim 7, wherein the tape is magnetic tape.

9. The method of claim 1, wherein the moving storage medium is a disk.

10. The method of claim 9, wherein the disk is one of a magnetic disk and an optical disk.

11. The method of claim 1, wherein the reference regions reside on at least one track from a plurality of tracks located on the moving storage medium.

12. The method of claim 11, wherein the reference regions are interleaved with a timing-based servo pattern located on the moving storage medium.

13. An apparatus, comprising:

a voltage-controlled oscillator having a control input and an output;

a phase detector having a first input, a second input, and an output; and

a first read head,

wherein the first read head reads reference regions from a moving storage medium, which is moving relative to the first read head, to generate a timing signal, the timing signal is coupled to the first input of the phase detector, the output of the phase detector is fed into the control input of the voltage-controlled oscillator, and the output of the voltage-controlled oscillator is coupled to the second input of the phase detector, whereby the voltage-controlled oscillator produces a signal representing a data transfer rate.

14. The apparatus of claim 13, further comprising:

a filter,

wherein the output of the phase detector is coupled to the control input of the voltage-controlled oscillator through the filter.

15. The apparatus of claim 14, wherein the filter includes a digital filter.

16. The apparatus of claim 14, wherein the filter includes an analog filter.

17. The apparatus of claim 13, further comprising:

a memory buffer; and

a write head,

wherein the write head writes data from the memory buffer to the moving storage medium at a rate proportional to the data transfer rate.

18. The apparatus of claim 13, further comprising:

a memory buffer; and

a second read head,

wherein the second read head reads data from the moving storage medium into the memory at a rate proportional to the data transfer rate.

19. The apparatus of claim 13, wherein the reference regions are located on at least one track of the moving storage medium.

20. The apparatus of claim 13, wherein the reference regions extend in an extension direction that is different from a direction of motion of the moving storage medium.

21. The apparatus of claim 20, wherein the extension direction is perpendicular to the direction of motion of the moving storage medium.

22. The apparatus of claim 13, wherein the reference regions are interleaved with a timing-based servo pattern located on the moving storage medium.

23. A storage medium product comprising:

a recording surface having at least one servo track, wherein the servo track includes a plurality of servo bands interleaved with a plurality of reference regions.

24. The storage medium product of claim 23, wherein the recording surface has a direction of motion.

25. The storage medium product of claim 24, wherein the direction of motion is circular.

26. The storage medium product of claim 24, wherein the direction of motion is linear.

27. The storage medium product of claim 24, wherein the reference regions extend in an extension direction that is different than the direction of motion.

28. The storage medium product of claim 27, wherein the extension direction is perpendicular to the direction of motion.

29. The storage medium product of claim 23, wherein the reference regions are recorded at a first frequency and the servo bands are recorded at a second frequency that is distinct from the first frequency.